APPLICATION FOR RESEARCH ETHICS APPROVAL

Reference Number (for office use):

1. Title of the research:

Developing an affect enhanced "Turrellian" RGB LED lamp designed to improve mood: towards multimodal affect-sensitive computing and devices.

2. Name of Applicant, with their job title:

Name: Humphrey Curtis

Job title: MSc Computer Science

3. Name of Supervisor (if applicant is a postgraduate or undergraduate student), with their job title:

Dr Paul O'Dowd (Department of Computer Science)

4. Other investigator(s) involved, with their job title:

n/a

5. Source of funding and grant code:

Self-funded

6. Does this source of funding place any restrictions on public dissemination (publication, etc.) of the results of the research? If yes, please say what these are.

No

7. Background and aims of the research:

My two hypotheses centre on qualitative and quantitative feedback from participants. Firstly, I believe that the affective or physiological state of a person will be significantly altered by the LED lamp's coloured light changes. Secondly, users will be able to consciously recognise the effect that the lighting manipulation is having on their affective state. Subsequently, the Turrellian LED lamp should be well received. Therefore, the goal of the study is to develop an IoT device, which is capable of being aware of individuals affective state and thus can offer an enhanced and improved interface, coloured lighting and useful experience for users – to hopefully improve users' mood. Consequently, research conclusions will be primarily drawn on users experience and opinion of the device and interface.

This ethics application covers the final, evaluative stage of the project. In this stage, the prototypical Turrellian LED IoT device will be evaluated from a User Experience (UX) perspective, ascertaining how well it satisfies user requirements and identifying areas for improvement.

8. Who will be recruited to participate in the research?

Participants will be recruited through contacting various companies or individuals who may wish to trial the device to improve their services – currently a business based in London, is interested in trialling the device to eventually benefit pupils and staff. The inclusion criteria are very clear: participants must be over the age of 18 and a UK-resident.

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9. How many participants will be recruited?

4-7

10. How will the participants be recruited?

Corporate communication and networking

Social media, e.g. Twitter, Facebook.

Online message boards, e.g. Reddit

11. Are there any potential participants who will be excluded. If so, what are the exclusion criteria?

Children and individuals who are not UK resident will be excluded. I do not anticipate receiving volunteers who are so unfamiliar with English that they cannot understand the task explanation and answer interview questions. The student additionally has lived abroad and is well practiced in making his English speech understandable to non-native speakers if necessary.

12. Where will the research take place?

In person, either at my house in London or ideally at the interested party/corporations place of work. Participants can opt to experience the IoT LED Turrellian device at a place of their choosing – provided it is a quiet environment and room.

13. How will informed consent be obtained from all participants or their parents/guardians prior to individuals entering the research study?

Participants will be sent an information sheet to read in advance of the experimentation. A copy of this document is attached. The student will then explain the project and the task to follow in person at the start of the experiment and give the participants a chance to ask questions. They will then be asked for their consent to be video and audio recorded. If this consent if granted, the recording will be started, and they will be asked a series of questions to get their verbal consent for the task. The questions they will be asked as part of the consent process are also attached. The video recording of the consent process will be securely retained on an encrypted external drive, to which only the student and his supervisor know the password, separately from the collected study data.

14. Will the study involve actively deceiving the participants?

No

15. Will participants be made aware they can drop out of the research study at any time without having to give a reason for doing so?

Yes. This will be conveyed to participants on an information sheet before the interview, and also verbally before the start of the interview when seeking their consent to proceed.

16. Outline the design of the research study and list the procedures to which the participants will be subjected, the anticipated testing time and any treatments administered.

The experimentation will be carried out in-person. There will be an initial explanation of the study and an opportunity to ask questions. At this point, participants will be asked for their verbal consent to be recorded and to proceed. Wiring of the physiological sensors will take place with myself demonstrating how that can be easily done and maintaining social distancing practices at all time.

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The participants will then be asked to interact with the IoT device application themselves by filling in their current affective state through the application. Participants will then be encouraged to enjoy the lighting rendered by the IoT Turrellian LED for a period of time. After the participant is done, they will be notified of any marked physiological changes and their affective state determined by the IoT LED.

Upon completion of the interaction exercise, participants will be asked to complete an online multiple-choice questionnaire about their experience or fill in a printed sheet. The questionnaire will be issued, and no personal information will be recorded. After completing the questionnaire, participants will additionally have the opportunity to briefly give their comments and opinions in a semi-structured interview format.

Time commitment:

Task explanation and informed consent: 10 minutes

Bodily sensor demonstration: 10 minutes

LED interactive exercise: 10 minutes

Questionnaire filling: 10 minutes

Interview: 10-20 minutes

Full sanitization and cleaning: 10 minutes

Total: 60 minutes maximum

17. Describe potential risks to participants (physical, psychological, legal, social) arising from these procedures.

The main potential risk to participants is associated with the present global Coronavirus pandemic. Therefore, ten minutes of time has been set aside for thorough and intensive cleaning of the experiment environment (5 minutes before and after). Cleaning supplies include hand sanitisers, surface cleaning equipment, masks and gloves – all of which will be purchased beforehand. As the sole experimental supervisor, I will wear full PPE throughout the entirety of the experiment and maintain social distancing practices from participants. Furthermore, participants will be provided with newly purchased PPE if they would like.

Monitoring participants physiological data and parsing there written affective reflection – should not be too difficult or taxing for participants. The device will merely determine participants affective state and subsequently orient the IoT LED's coloured lighting. If participants suffer from extreme emotional disorders or do not wish to share their affective state – they will not be required to participate in the experimentation. Participants personal affective reflection will not be stored. With all these things considered, the risk of participants coming to physical harm is very low, and the legal/reputational risk to the study conductor or the University of Bristol is even lower.

18. How will participants be debriefed?

Participants will be contacted via email soon after the thesis submission date to inform them what the core findings of the thesis were. In the event that the thesis is ultimately published in any form, the student will additionally contact the study participants to make them aware of this. Furthermore, at the end of experimentation participants will be provided with my email to provide any further feedback if they develop any thoughts upon later reflection.

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19. Is any reimbursement of expenses or other payment to be made to participants?

Yes, they will be offered a £10 Amazon voucher. The project supervisor has advised that, in his considerable experience, a small amount of remuneration can improve recruitment especially in the middle of a pandemic. It is not believed to be likely that remuneration will cause participants to act against their own self-interest because the risk of participating in the study is low in the first place.

20. Will personal data, beyond those recorded on the consent form, be used in the research?

Yes. All personal information recorded in the consent process will be kept strictly confidential. Any final write-ups of the data gathered in the interview will not include any information that can be linked directly to the participant. Any intermediate transcriptions will be stored so that the participant's name is not associated with it (using an arbitrary participant number). All data will be handled confidentially and anonymously. Results from the research will be presented in accordance with rules for anonymity such that the results cannot be traced to individual participants.

The anonymous interview data will be encrypted (as per University of Bristol Policy) and stored by the student on a password-protected computer system only accessible by the student.

The questionnaire does not collect any personally identifying information.

21. Will the participants be audio-recorded or video-recorded?

Yes. This is detailed in the information sheet and will also be explained in the process of getting verbal consent. It will be explained that their anonymised data may be used in an MSc thesis or published. The material will not be shown publicly.

22. When will this research be completed? (Give a date)

01/09/2020

23. How will the data be made available at the end of the project? (You must declare your level of access)

Registration required for access to the anonymised data.

24. Any other relevant information

n/a